

Either there is some variation yet unaccounted for or two forms have been confused. The holotype of *metallica* and a series from the holotype locality must be studied to decide this point.

NOTES ON SOME GENERA OF SYRPHIDAE WITH DESCRIPTIONS
OF NEW SPECIES.

BY R. C. SHANNON, *Bureau of Entomology.*

This paper includes synopses of the genera *Chrysogaster* and *Caliprobola*, the latter genus in this country hitherto included under *Brachypalpus*. The kind interest and assistance which Dr. Aldrich and Messrs. Knab, Crawford and Barber have taken in various ways has had much to do with its preparation. The material used is from Dr. Aldrich, Mr. Banks, the Biological Survey and the National Collection.

GENUS CHRYSOGASTER Meigen.

The genus *Chrysogaster* in North America can be divided into four distinct groups, as is shown below in the table. Verrall,¹ in his British Syrphidae, has a table which separates the British species into three groups which he designates by their subgeneric names, but the comparison of these groups with our species shows intergrading differences and affinities. Although our groups are distinct, their species are, as a rule, closely allied to each other.

Loew² has described a species, *nigrovittata*, which has the third antennal joint almost three times as long as broad. This species belongs to the group of which *stigmata* Will. is typical, as is indicated by the wing venation and color of the legs. The writer has seen only one species in this group with antennae as long as Loew described for *nigrovittata* and this is *stigmata* (see table). Specimens now in the National Collection which were determined by Williston and recorded in his synopsis of the Syrphidae as *nigrovittata* are placed by the writer under other species, *sinuosa* and *pirra*, n. sp. Paul R. Jones' records two females of *nigrovittata* from Idaho.⁴ He states that the antennae are a trifle longer than indicated in Loew's description.

¹ Brit. Flies, VIII, p. 186, 1901.

² Zeitschr. für Naturw. XLVIII, No. 14, p. 323, 1876.

³ Ent. News, 18, p. 238, 1907.

⁴ Ent. News, XVIII, p. 238, 1907.

TABLE OF SPECIES.

1. At least first two tarsal joints yellow or yellowish red. Antennae elongate; apical cross vein rectangular or directed slightly inwards; stigma about as long as distance between the tips of second and third vein; mesonotum with coppery vittae. (Group 1)..... 2
 Legs entirely dark..... 5
2. Eyes with several linear markings..... 3
 Eyes with only a faint median transverse stripe..... 4
3. Vertical markings on eyes very labyrinthine, last section of fourth vein at the middle with an inward angulation which bears a stump and terminating beyond tip of the second vein; wings with blackish markings on the outer cells.....*nitida* Wied.
 The vertical markings on the eyes fairly regular; last section of fourth vein without the angulation and stump; wings with spot only at tip of second vein and sometimes one at tip of fourth vein..*bellula* Will.
4. Cross veins with brownish clouds.....*pictipennis* Loew.
 Wings entirely hyaline.....*pulchella* Will.
5. Last section of fourth vein (apical cross vein) recurrent on its distal half; stigma only about as long as distance between the tips of second and third veins; antennae not very small, sometimes elongate; a whitish pollinose band extends across face just below antennae, except in *stigmata* and possibly in *nigrovittata*, and below this band the face is rugulose. (Group 2)..... 6
 Last section of fourth vein directed obliquely outward in its distal portion..... 13
6. Third antennal joint approximately three times as long as broad.. 7
 Third joint less elongate..... 8
7. Pile on frons and ocellar triangle black.....*nigrovittata* Lw., ♂
 Pile on frons and ocellar triangle whitish.....*stigmata* Will., ♂
8. Squamae and halteres darkened..... 11
 Squamae and halteres whitish..... 9
9. The transverse pollinose band below antennae reduced almost to two spots at the eye margins; frons black; arista a little shorter than the antennae.....*stigmata* Will., ♀
 The pollinose facial band complete and distinct; frons greenish metallic..... 10
10. The vittae on the mesonotum very faint, paler than rest of dorsum; arista a little longer than the antennae; rather large, robust species.
robusta n. sp.
 Vittae on mesonotum coppery colored; arista a little shorter than antennae; small species.....*parva* n. sp.
11. Dark, greenish black species; pile on ocellar triangle and frons rather long and dark.....*pacifica* n. sp.
 Dark steel blue species with very short whitish pile on frons and ocellar triangle..... 12

12. Entire abdomen unicolorous with thorax and as distinctly punctured.
unicolor n. sp.
 Disc of abdomen subopaque.....*sinuosa* Bigot.
13. Stigma only about as long as distance between the tips of second and third veins; frons in the female with nearly parallel sides and with two slightly rugulose, longitudinal stripes; antennae small; squamae and halteres pale; disc of abdomen shining. (Group 3)...*lata* Lw., ♀
 The stigma elongate, much longer than the distance between the tips of the second and third veins; the penultimate section of the fifth vein a little bowed downwards; a transverse whitish pollinose band just below the antennae; antennae very small; disc of abdomen subopaque. (Group 4)..... 14
14. Frons in the male but little inflated; in the female the width of the eyes at mouth margin but little greater than at vertex; both sexes with rather faint vittae on mesonotum; small species....*nigripes* Lw.
 Thorax without vittae; frons of the males much puffed out; larger species..... 15
15. Squamae with a darkened tinge; pile on the frons rather long.
inflatifrons n. sp.
 Squamae whitish; pile on the frons in male rather short...*texana* n. sp.

Chrysogaster stigmata Will.

The description of this species was based upon specimens from California. Three specimens, two males and one female, from Moscow, Idaho, sent by Professor Aldrich, agree with the types except that they are somewhat blacker in color, but this is not a sufficient difference to separate them. The antennae of the female are less elongate, the third joint being only a little more than one and a half times as long as broad; the third joint differs further from that of the male in being broadly reddish on the lower margin.

Chrysogaster robusta, new species.

A rather large, robust species for this genus; dark greenish bronze.

Male: Ocellar triangle and frons bronzy green, with conspicuous, pale brownish pile. Antennae blackish, reddish on under side of third joint, which is a little longer than broad; arista dark, very minutely pubescent and but little longer than antennae. Face greenish black, with short white pile, rather gently excavated, mouth margin reaching forward as far as antennal prominence; a distinct whitish pollinose band extending across to the eyes and below this the face is broadly, faintly rugulose. Thorax with very short, pale brownish pile; mesonotum with two median, very faint stripes. Disc of abdomen subopaque, shining at the sides. Hypopygium rather large, with abundant, short, whitish pile. Wings slightly smoky. Squamae whitish and halteres yellowish. The first

tarsal joint of the hind legs somewhat swollen. Length, 7.5 mm.; wing 5 mm.

Allotype Female: Differs from the male as follows: Frons rather smoothly, transversely rugose, interrupted medianly by a very shallow longitudinal furrow, the pile short, yellowish brown. Stripes on the mesonotum more distinct, silvery green. Abdomen nearly as broad as long. Length about 6.5 mm.; wing 5 mm.

Pacific Grove, California, two males and two females, May 9, 1906, wet meadows in woods (J. M. Aldrich).

Type: Cat. No. 20279 U. S. N. M.

This species appears to be closely related to *C. stigmata* Will., but this latter species has elongate antennae, shorter pile on the frons and the pollinose band below the antennae is represented by only two silvery spots at the sides.

***Chrysogaster parva*, new species.**

Small, light greenish bronze species.

Male: With whitish, short pile on ocellar triangle and frons, shorter on the frons. Antennae fulvous, darker on upper margin, third joint a little longer than broad, arista dark, a little shorter than antennae and without perceptible pubescence. Faece greenish black, with whitish pollinose band below the antennae and beneath this broadly, faintly rugulose; the pile white, very short and scattered. Thorax with very short brownish pile; mesonotum with four faint copper-colored vittae. The subopaque disc of the abdomen surrounded by shining sides. Hypopygium large, with inconspicuous, white pile. Wings somewhat smoky. Squamae whitish; halteres yellowish. First tarsal joint of the hind legs not swollen. Length: 5 mm.; wing about 4 mm.

Allotype Female: Frons greenish black, with transverse rugose ridges, interrupted medianly by a longitudinal, very shallow depression and with very short, whitish pile which is longer on ocellar triangle. The vittae on the mesonotum more distinct than in the male. Abdomen broad and oval. Length about 5.5 mm.; wing about 4.75 mm.

Colorado, nine females, one male (four of these were placed by Williston under *C. nigrovittata*); Lake Tahoe, California, one male and one female; Ormsby, Nevada, one ♀, July 6 (C. F. Baker); Reno, Nevada, one ♀ (H. F. Wickham); Garland, Colorado, a pair in copulation, June 18.

The four specimens mentioned last are larger than the others.

Type: Cat. No. 20280 U. S. N. M.

The types are labeled only "Colorado."

This species is very closely related to *robusta*, but is smaller and much less robust, the pile on the frons is shorter, the arista shorter and apparently entirely without pubescence, while there

are four vittae on the thorax instead of two, and these are coppery colored. The first joint of the male hind tarsi is also noticeably more slender.

Chrysogaster pacifica, new species.

Large, robust, dark, greenish bronzy black species, the largest of this group.

Male: Ocellar triangle and frons with rather long blackish hairs. Frons shining black, noticeably inflated. Antennae reddish brown, third joint twice as long as broad; arista darker, a little longer than antennae. Face shining, black, with short whitish pile, not excavated and the mouth margin but little produced and not reaching as far forward as antennal prominence. A whitish pollinose stripe extends across to the eyes just below the antennae and below this the face is broadly, faintly rugulose. Thorax with very short, whitish pile. Mesonotum with four dark vittae. Disc of abdomen subopaque. Wings somewhat smoky. Squamae blackish, the halteres darker. Length 8.5 mm.; wing 6 mm.

Type: Cat. No. 20281 U. S. Nat. Mus.

Described from two males without locality labels but labelled "Collection Coquillett" and determined by Coquillett as *C. nigrovittata*, which is a Californian species (the different length of antennae distinguishes it at once from *nigrovittata*). Since much of Coquillett's early material was from California and since he determined it as a species described from California, the surmise that California is the habitat for this species would seem justified.

This species is easily recognized by its large size, rather long, dark pile on the frons and the straight face with the mouth margin but slightly produced. It resembles *Chrysegaster robusta* somewhat in general appearance, but its longer antennae and the color of the squamae and halteres at once distinguish it.

Chrysogaster sinuosa Bigot.

Medium sized, dark, steel blue species.

Male: Frons and ocellar triangle bluish black, with blackish hairs. Antennae reddish yellow, darker on upper margin, third joint about one and one-half times as long as broad; arista darkened at the base, yellowish towards the tip, a little longer than the antennae. Face shining bluish black, entirely bare but for a few hairs along the eyes; just below the antennae, a whitish pollinose cross band extends to the eyes, the face faintly rugulose below this. Face receding, the mouth margin but little produced. Thorax with minute whitish pubescence. Mesonotum with four distinct blackish vittae. Disc of abdomen subopaque, the rest of the dorsum shining. Hypopygium prominent, with whitish pile. Wings with a blackish tinge. Squamae and halteres blackish. Length: 7 mm.; wing 5 mm.

Female: Frons with very short pile, longer on the vortex, with the

transverse rugosity interrupted down the middle. The frons widens rather gradually toward the antennae. Wings, squamae and halteres paler than in the male.

Four males and two females: "Washington Territory;" Seattle, Washington, May 22, 1897; Moscow, Idaho, June 2, 1908 (J. M. Aldrich); Moscow Mountain, Idaho (J. M. Aldrich); Oregon, (Koebele); Mono Lake, California, July 23, 1911 (J. M. Aldrich).

The specimens, now in the National Collection, four from Colorado and one from Washington Territory, which Williston recorded as *nigrovittata* Loew in his "Synopsis of North American Syrphidae" do not fit the description that Loew gave for the length of the third antennal joint. The four specimens he had from Colorado now form part of the material of *C. parva*, a new species described in this paper; his other specimen, from Washington Territory, except for a few minor points, fits the description of Bigot's *C. sinuosa*, which Williston had placed as a synonym of *C. stigmata*.

C. sinuosa may be recognized by its dark steel blue color, the fulvous antennae, darkened squamae, halteres and wings, and the microscopic pubescence on the body. The third antennal joint varies somewhat in size in the male. In the Oregon specimen it is a little longer than in the others, while in the specimen from Moscow Mountain, Idaho, it is nearly as broad as long.

Chrysogaster unicolor, new species.

Medium sized, dark steel blue species; the entire dorsum of the abdomen unicolorous with the thorax.

Female: Frons shining, bluish black, with the transverse ridges more broadly separated and the longitudinal, median dividing ridge broader than in the other species of this group; pile short and pale. Antennae elongate, first and second joints darkened, third reddish brown, darker on the upper margin and about two and one-half times as long as broad; arista darkened at the base, becoming lighter towards the tip. Face dark steel blue, with a pollinose, whitish band extending across to the eyes just below the antennae and below this broadly, faintly rugulose; a tubercle or swelling on each side of the face below near the eyes. Thorax with microscopic pile; mesonotum with four blackish vittae, the outer ones very faint. Abdomen entirely dark steel blue, the same as the thorax. Wings, squamae and halteres darkened. Length: 7 mm.; wing 5.25 mm.

Two females from Ormsby County, Nevada (type locality), July 6 (C. F. Baker); Reno, Nevada (H. F. Wickham).

Type: Cat. No. 20282 U. S. N. M.

This is the only species of this group in which the disc of the abdomen is not subopaque, but unicolorous with the mesonotum.

Chrysogaster nigripes Loew.

Rather small, dark species. The apical cross vein is bent inward to join the third vein. Stigma much longer than the distance from the tip of the second vein to tip of the third. Legs entirely black.

Male: Ocellar triangle raised and with rather short black pile. Frons but little inflated, shining bluish-greenish black, the pile black, longer than on the ocellar triangle. Antennae quite small, third joint ovate, yellowish brown, the arista darker. Below the antennae a transverse whitish pollinose band extends to the eyes. Face colored as the frons, with a small tubercle. Thorax velvet black with numerous irregular metallic greenish spots enclosing punctures, more or less confluent at the sides, and a pair of rather ill-defined stripes of the same color on the dorsum midway of the middle and the sides; pile short and rather dense, blackish. Scutellum concolorous with mesonotal punctures. Dorsum of abdomen opaque, the sides shining, dark metallic green. Wings with a distinct blackish tinge. Squamae and halteres darkened. Length: about 6 mm.; wing about 4.5 mm.

Female: More bluish or greenish than the males, immature specimens purplish. The pile everywhere shorter, being hardly noticeable. Frons transversely rugose, interrupted at the middle by a longitudinal ridge, above the antennae smoothed, with depression in the middle and somewhat produced forward. The eye margins but little wider below than at vertex. Antennae noticeably larger than in the male, yellow, somewhat darkened. Below the antennae a whitish, pollinose band extends across to the eyes. Mesonotum and scutellum dark metallic blue, unspotted and without stripes. Wings a little clearer, in immature specimens hyaline, and the squamae paler than in the male. Length: about 5.5 mm.; wing about 4.5 mm.

Specimens from Ontario, Maine, New Hampshire, Massachusetts, Connecticut, New York, Maryland, Virginia, North Carolina, Georgia.

Chrysogaster inflatifrons, new species.

Large species, color dark greenish black. The apical cross vein not recurrent, stigma much longer than the distance between the tips of the third and fourth vein. Legs entirely black.

Male: Ocellar triangle prominent, with black pile. The frons well puffed out, shining, with rather long, black hairs. Antennae reddish yellow, the arista blackish; third joint ovate, nearly as broad as long. Below the antennae a whitish pollinose band extends across to the eyes. Face with large rugulose spots on the sides above and with a small tubercle. Mesonotum velvety black and with many punctures which are enclosed by metallic greenish spots and with dense, short, blackish pile; scutellum unicolorous with the spots on thorax. Dorsum of abdomen subopaque,

the sides shining, dark greenish black. Wings and squamae slightly blackish, the halteres darker. Length: about 8 mm.; wing about 6 mm.

North Carolina, four males (Morrison).

Type: Cat. No. 20283 U. S. N. M.

This species is closely related to *C. nigripes*. The larger size, the greater swelling of the frons in the male, which also has noticeably longer pile, the longer pile on the thorax and scutellum and the absence of the stripes on the mesonotum distinguish it from *nigripes*. The antennae are also larger.

Chrysogaster texana, new species.

Male: Bright steely blue. Ocellar triangle prominent, with black pile. Frons well puffed out, highly polished, steel blue, with rather short black pile. Antennae yellowish, the third joint darkened above, ovate, nearly as broad as long, arista blackish. A whitish pollinose band below the antennae extends to the eyes. Face with arcuate rugulose spots directed toward the antennae and with rather poorly defined tubercle. Thorax with short dark pile; mesonotum without stripes. Dorsum of abdomen subopaque, the sides bright steel blue. Legs entirely dark. Wings hyaline; squamae whitish; halteres dark. Length: 6.5 mm.; wing 6 mm.

Female: Shining, metallic blue. Frons transversely rugose, with a longitudinal ridge down the middle, above the antennae smooth and produced forward. Antennae reddish, arista blackish. Below the antennae a rather broad band extends across to the eyes; margin of the eyes noticeably wider below than at vertex. Thorax shining metallic blue, with very short pile, the mesonotum without vittae. Wings hyaline; squamae tinged very slightly; halteres dark. Length: 7 mm.; wing 5.5 mm.

Willis, Texas, one male and one female.

Type: Cat. No. 20284 U. S. N. M.

This species is separated from *C. nigripes* by the absence of the vittae on the mesonotum and the pale wings and squamae; the male differs in the greater inflation of the frons, the female by the eyes more widely separated below.

GENUS CALIPROBOLA Rondani.

Brachypalpus pulcher and *sorosis* were described by Williston in his Synopsis of the Syrphidae in the genus *Brachypalpus*, although, in his table of species he separated them off under a subgenus, *Caliprobola*, a genus which Rondani¹ established in 1844 for *Milesia speciosa*. Verrall² in his British Syrphidae re-

¹ Ann. Sci. Nat. Bologn. (ser. 2) II, p. 455.

² Brit. Flies, VIII, p. 627, fig. 430.

describes this genus and species, detailing characters which he considers distinguish it from the closely allied genera *Cynorrhina*, *Milesia*, *Spilomyia*, and *Temnostoma*. *Pulcher* and *sorosis* must be referred to *Caliprobola*, since they agree in all generic characters except that they possess small spines on the lower margin of the hind femora; the absence of these spines or bristles Verrall claims to be an essential character for the typical European species. Verrall states that the subgenus which Williston used in his table is not the true *Caliprobola*, as it has bristles present on the hind femora. But even *C. speciosa* has "tiny bristles beneath the hind femora," as is stated by Verrall himself in his description of this species. The material before me tends to show that this is a specific rather than a generic character. *C. aldrichi*, new species, has the spines very minute, in this respect agreeing closely with *C. speciosa*. A character seemingly of more importance is the brilliant bronze aeneous color of the abdomen which is similar to our *Chrysochlamys croesus* O.S., and even more so to *Callicera aenea* Fabr. of Europe. At the present time the catalogues list only two species under this genus; *speciosa* from Europe and *cimbiciformis* Portsch, from Siberia. Sack has described a species *C. aurea* from Transcaespia (Beil. Progr. Gymn. Wohler, vol. 42, p. 28, 1910).

Brachypalpus and *Caliprobola* may be distinguished as follows:

Head noticeably triangular shaped, face entirely dark, abdomen dark, thorax with longitudinal vittae, hind femora with ¹ short bristles below.....	<i>Brachypalpus</i>
Head not noticeably triangular shaped, face largely yellow, abdomen bright aeneous with opaque cross bands; thorax without vittae, ² hind femora with short bristles beneath, sometimes very small	<i>Caliprobola</i> .

TABLE OF SPECIES.

1. Dorsum of thorax dull black, with nearly all black pile; female without opaque cross bands on fourth abdominal segment³..... 2
Dorsum of thorax brassy aeneous, with pile all yellow; female with opaque cross band on fourth abdominal segment..... 4
2. A deep infuscation on anterior border of wing which extends into the first and second basal cells; anterior cross-vein joins the middle of discal cell; first abdominal segment entirely aeneous except for an opaque spot on anterior margin..... 3

¹ In Williston's table, the true *Brachypalpus* are said not to have short bristles below.

² With proper reflection two median ones are scarcely perceptible on individual specimens.

³ One ♀ specimen of *pulcher* has a faint band.

Wings slightly infuscated, first and second basal cells hyaline; anterior cross-vein very oblique, joining discal cell noticeably beyond the middle; first abdominal segment opaque, its anterior angles aeneous

pulcher Will.

3. Abdomen bright metallic green, meso-pleurae with black hairs intermixed with the yellow pile; hind tibiae of female nearly as thick as hind femora.....*opacus* n. sp.

Abdomen shining bronze; meso-pleurae with only yellow pile; hind femora of female noticeably thicker than tibiae.....*aldrichi* n. sp.

4. Legs almost entirely yellow, sometimes a reddish brown and on femora; only the tips of tarsi blackish; anterior cross-vein joins discal cell at middle.....*sorosis* Will.

All the femora blackish, yellowish at tips and bases; cross-vein joins discal cell a short distance beyond middle.....*crawfordi* n. sp.

Caliprobola pulcher Will.¹

Head distinctly broader than high. Frons in male yellow, with microscopic pubescence which is longer along the eyes. Arista dark, more than twice the length of antennae, and with minute pubescence along entire length. Frons in female black with yellowish, pollinose sides and short fuscous pile. Wings hyaline, darkened somewhat along veins. Length: Male 14-17 mm., wing 11-13 mm.; female 13 mm., wing 11 mm.

Five males and two females: "Washington Territory" (type specimen); Mt. Hood, Ore., ♂ and ♀. The following is material loaned by Mr. Banks: Marys Peak, Ore., July 18, 1914 (L. G. Gentner), Pamelaia, about 3000 ft. alt., Mt. Jefferson, July 27, 1907, and Mt. Jefferson, July 15, 1907 (J. C. Bridwell Coll.); Corvallis, Ore., Sept. 20, 1914 (A. F. Barss Coll.). This last specimen is the female which unlike the others of this sex has a narrow, interrupted opaque band on the fourth abdominal segment. The band on this segment is characteristic of the females of *sorosis* and its ally *crawfordi*; but not of *pulcher* and its allies, *aldrichi* and *opacus*. The antennae are missing in this specimen but it agrees otherwise with *C. pulcher* female.

Caliprobola opacus, new species.

Rather slender, with head but little broader than high; dorsum of thorax entirely subopaque black; abdomen bright metallic green with several opaque cross-bands; wings strongly infuscated anteriorly.

Male: Frons reddish brown, silvery pollinose along sides; no pile. Antennae reddish yellow; third joint broader than long, darkened anteriorly; arista brownish, less than twice the length of antennae. Ocellar triangle black and with blackish pile. Pile of thorax deep brown, yellow

¹ Syn. Syr., U. S. N. M. Bull. 31, 1886, p. 223, pl. X, fig. 9a, b, c.

along posterior margin of scutellum and on post-alar calli. Abdomen bright metallic green; second segment with two opaque black cross-bands, the first one on the anterior margin; third segment similarly ornamented, but with the second opaque band very narrow; fourth segment entirely metallic green, longer than broad. Femora of the front and middle legs brownish black exteriorly, reddish brown on inner sides, yellow at bases and tips; hind femora blackish on more than basal half, yellow distally. All the tibiae and first three joints of tarsi yellow, the other tarsal joints black. Length: Body about 15 mm.; wing 10 mm.

Female: Frons aeneous black, reddish brown above antennae, with very narrow whitish pollinose stripes along eyes and with a flat surface, not depressed. Legs as in male, except that hind femora are yellow at base; hind tibiae, except at base, nearly as thick as femora. Scutellum with almost entirely black pile. Length about 12 mm.; wing 11 mm.

Kanaka Bay, San Juan Islands, Washington, one male, type, May 31, 1906 (J. M. Aldrich); Ft. Wrangel, Alaska, one female allotype (Wickham).

Type: Cat. No. 20287 U. S. N. M.

***Caliprobola aldrichi*, new species.**

Very similar to *opacus* but more robust, head obviously broader than high; abdomen brilliant bronze, with the pile more golden.

Female: Frons depressed, dull aeneous black, somewhat reddish above antennae, with dark brown pile and very narrow whitish pollinose stripes along eyes. Dorsum of thorax sub-shining black, with dark brown pile; meso-pleurae with rather long golden pile; posterior margin of scutellum and post-alar calli with yellow pile. Abdomen banded similarly to *opacus*. Fore femora dark on outer side, yellow on inner side; middle femora almost entirely yellow; hind femora yellow, a dark band around the middle; the rest of legs yellow, except the last two joints of all the tarsi. Wings infuscated anteriorly, darkest along the veins. Length: Body about 12-14 mm., wing 11-12 mm.

Described from three females: Mt. Rainier, Washington, above Longmires, 5000 ft., Aug. 3, 1905 (J. M. Aldrich).

Type: Cat. No. 20288 U. S. N. M.

I have great pleasure in naming this species in honor of Professor J. M. Aldrich, who very generously sent me certain new species of Syrphidae in order that I might describe them.

***Caliprobola sorosis* Will.**

Williston described this species only from the male; characters for the female follows:

Female: Frons dull dark aeneous, yellowish above antennae, with whitish pollinose stripes along the eyes and with short brownish yellow pile.

Color of the legs, thorax, abdomen, and pile as in the male. Wings also the same. Fourth abdominal segment with a narrow, interrupted cross-band. Length: Body about 11.5 mm., wing 9.5 mm.

Mr. Banks has loaned me a male and female; on the latter the above description of the female is based. Southern Pines, N. C., March 29, 1910 (A. H. Manee). The male is smaller and somewhat darker than the type specimen.

Caliprobola crawfordi, new species.

All the femora blackish, yellowish at tips and bases; the cross-vein joins the discal cell beyond the middle.

Male: Frons reddish brown or yellowish, silvery pollinose along sides. Antennae and arista reddish yellow; third joint nearly quadrate. Mesonotum and scutellum shining metallic bronze, with abundant yellow pile; meso-pleurae and sternopleurae same as dorsum of thorax, the other parts of the pleurae black and bare. Dorsum of abdomen the same color as dorsum of thorax, with opaque bands; second segment with two opaque bands, the first on anterior margin; third segment similar to the second; fourth entirely aeneous. Fore and middle femora entirely black except tips; hind femora black, yellow at tips and bases. Tibiae and first two tarsal joints of the front and middle legs yellow, the other tarsal joints blackish. Tibiae of hind legs reddish yellow with a little black; first two tarsal joints yellowish, the rest blackish. Wings infuscated, quite pale posteriorly. Anterior cross-veins joins discal cell a short distance beyond the middle. Length: Body about 11.5-13 mm.; wing 10-11 mm.

Female: Frons blackish, reddish brown above antennae, and with short yellowish pile. Second and third abdominal segments banded as in male; fourth segment with a band on anterior margin, partly concealed by the overlapping of the third segment, and with a narrow interrupted band across the middle. Coxae of all the legs black, trochanters reddish yellow; bases and tips of femora of the front and middle legs yellow, the rest blackish. Femora of hind legs largely reddish brown, tibiae reddish yellow; the tarsal joints darkening posteriorly. Wings as in the male. Length: 11 mm.; wing 10 mm.

Seattle, Washington, May 15, 1898 (Male type, female allotype, J. M. Aldrich).

Type: Cat. No. 20289 U. S. N. M.

Described from six specimens; paratypes from Potlatch, Idaho, June 20, 1907, J. M. Aldrich Coll; and one specimen "Washington Territory." (This latter specimen was part of Williston's type material of *Brachypalpus pulcher*.)

This species is closely allied to *Caliprobola sorosis* Will. Additional characters that should aid in distinguishing them are as follows: In *sorosis* the spiracle below the humerus is surrounded

by short bright yellow pile, the wing bases are a deep yellow, the wing roots are reddish brown with short, yellow bristles and the base of the costa has short, bright yellow bristles.

In *crawfordi* the spiracle below the humerus is surrounded by short, brown pile, the wing bases are brownish yellow, the wing roots blackish, with short, black bristles and the bristles on the base of the costa are black and yellow.

Mr. Crawford has helped me considerably in working up the material of this group and it is with great pleasure that I name this species in his honor.

Besides the above specimens the National Collection contains the following specimens of doubtful specific position: One female specimen from Lake Co., Cal., (D. W. Coquillett Coll.), which differs in having the frons yellow above the antennae, the pile on thorax and abdomen more golden and the wings lighter at base; another female from Kaslo, B. C., June 12, (R. P. Currie Coll.) differs in having the third antennal joint obviously broader than long; the anterior cross vein joins the discal cell at the middle and the hind femora are almost entirely yellowish red.

A REVIEW OF NORTH AMERICAN TORTOISE BEETLES.

(*Chrysomelidae; Cassidinae.*)

BY H. S. BARBER, *Bureau of Entomology.*

The writer recently rearranged the National Collection of North American species of cassidids according to the catalogue of this group by Spaeth 1914 (Junk's Coleopt. Catal., pt. 62) and was much surprised at the result, for the six genera and twenty species of the Henshaw list and supplement have now become sixteen genera and twenty-eight species with several additional sub-species, varieties and aberrations. Of our fauna as here treated five genera and eleven species are tropical, entering our southern limits at only one or two points, while two or three European species are reported to have become established; a few of the species listed below do not deserve continued space in our lists. Only seven of our species appear to be known exclusively from the United States and we have no genus peculiar to our fauna.

For our few species we have heretofore gotten along very well with but few genera. Yet when our forms, which are in reality only the northern fringe of a great tropical fauna, are studied in connection with their closest relatives of other regions, finer generic distinctions are demanded and new generic terms are forced upon the unwilling local collectors. Our own systematic literature is, as might be expected, comparatively meager and it is